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OPHRYOTROCHA DIADEMA**

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**BISPHENOL A AFFECT THE REPRODUCTIVE FUNCION OF THE MARINE POLYCHAETE
*OPHRYOTROCHA DIADEMA***

Polychaetes of the genus *Ophryotrocha* are small worms living among the interstitial fauna in nutrient-rich and polluted habitats, such as harbors. Owing to easy rearing in the laboratory and short generation times, several of the about 40 species currently described are model organisms for studying different biological aspects, including reproductive biology. The amount of plastic and microplastic dispersed in the sea is continuously increasing, strongly affecting the development and reproduction system of several marine organisms. Bisphenol A is one of the most used additives in the production of many plastic products and can be released into the environment by many products commonly used as food containers and polycarbonate bottles. This compound was found to be an endocrine disruptor, able to produce adverse effects on the reproduction of benthonic and pelagic communities. In the present study, we describe, in *Ophryotrocha diadema*, the effects of different concentrations of BPA on eggs production. We tested six different concentrations of BPA in a 5-weeks experiment: 0.2 μM (45.7 $\mu\text{g/L}$), 0.4 μM (91.3 $\mu\text{g/L}$), 0.8 μM (182.6 $\mu\text{g/L}$), 1.6 μM (365.3 $\mu\text{g/L}$), 3.2 μM (730.5 $\mu\text{g/L}$) and 6.4 μM (1461.1 $\mu\text{g/L}$). We found a strong negative correlation between BPA concentrations and the number of eggs produced ($R^2 = 0.817$), with an average of 22.3 eggs/individual for controls and 3.3 for polychaetes exposed to the highest concentration. The Mann-Whitney test revealed a significant reduction in eggs production after exposure to BPA concentrations over 730.5 $\mu\text{g/L}$. This threshold concentration is higher than that observed in marine environment, although for many species of crustaceans, echinoderms and isopods, an impairment of reproductive function was observed even at very lower BPA concentrations. This apparent ability of *Ophryotrocha* to "withstand" at higher concentrations of BPA, may be related to the fact that these organisms are commonly found in highly degraded environments, and they probably evolved genetic mechanisms able to provide them a greater resistance to pollutants. For this reason, *Ophryotrocha* seems to be particularly useful as bio-indicators of the health status of the marine environment.